

A Case Report of Tongue Edema due to Laryngeal Mask with Introducer

Introducerli Laringeal Maske ile İlişkili Dilde Ödem

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ABSTRACT

Airway management using a laryngeal mask is an especially preferred noninvasive technique because of its achievement of hemodynamic stability and ease of application in surgeries that have short surgery time and do not require specific positions such as the prone position. Although it is easily performed, serious complications may manifest rarely because of lack of experience and inappropriate choice of instrumentation. In this case report, clinical management and treatment options of tongue edema that developed because of the forgotten introducer in laryngeal mask application are presented.

Keywords: Laryngeal mask airway, tongue edema, introducer

ÖZ

Laringeal maske ile havayolu yönetimi, hemodinamik olarak stabil, cerrahi operasyon süresi kısa olan ve prone pozisyonu gibi spesifik pozisyonları gerektirmeyen ameliyatlarda uygulama kolaylığı sağladığı için özellikle tercih edilen noninvaziv bir tekniktir. Kolay bir şekilde uygulanmasına rağmen, deneyim eksikliği ve uygun olmayan enstrümantasyon seçimi nedeniyle ciddi komplikasyonlar nadiren ortaya çıkabilir. Bu olgu sunumunda laringeal maske uygulamasında unutulmuş introdüser nedeniyle gelişen dil ödemi tablosunun klinik yönetimi ve tedavi seçenekleri sunulmaktadır.

Anahtar sözcükler: Laringeal maske, dilde ödem, introdüser

Introduction

The laryngeal mask (LM) is a preferable method for short-duration surgeries that are planned to be performed under general anesthesia because it is easily and readily performed (1). The success rate of standard LM administration is closely associated with appropriate patient and LM-size selection and the skill and experience of the clinician. The introducer is an apparatus that facilitates the application of LM and must be extracted after the application. If not extracted, the pressure caused to the tongue, a highly vascularized organ, may result in hematoma (2). The elongation of surgery time may also increase the number of complications. In this case, we present a case of tongue edema related to the forgotten introducer apparatus in the LM technique, which has not been reported previously in the literature.

Case Report

A 53-year-old male patient weighing 80 kg diagnosed with benign prostatic hypertrophy with no known history of systemic diseases consulted for general anesthesia. Written informed consent was obtained from the patient. No physical or laboratory abnormalities were observed. The patient did not want local anesthesia. Therefore, general anesthesia with LM technique was planned considering the relatively short duration of the surgery.

After anesthesia induction was performed using 2 mg midazolam, 2 mg propofol and 1 µg/kg fentanyl, LM appropriate to patient weight was selected. The laryngeal mask airway (LMA™) with an "Introducer™" was inserted, and the cuff was ventilated with 25 mL of air (Figure 1). The surgery was initiated after the airway control had been performed. The tongue was examined after the insertion and was observed to be in position and free.

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At the end of 35 min of surgery, LMA™ was extracted after the patient was observed to have a spontaneous respiration effort and could open the mouth with verbal input. Subsequently, his tongue was observed to be edematous, and he had difficulty in swallowing (Figure 2). He was monitored in the postoperative care unit (POCU) with emergency airway management equipment because it was believed that he had a respiratory problem. The POCU entrance values were oxygen saturation (SpO₂), 94; peak heart rate (PHR), 85/min; and blood pressure (BP), 135/85 mmHg. Dexamethasone (8 mg)



Figure 1. Flexometallic laryngeal mask airway



Figure 2. Photograph showing edema of the tongue



Figure 3. Introducer

and atropine (1 mg) were administered and followed-up with 2lt/min O₂ given using the nasal mask in spontaneous respiration. The SpO₂ level was 94%-97% at the patients' follow-up in POCU. Physical examination revealed no hematoma and sign of trauma, and the posterior pharynx was patent. After 1.5 h of follow-up, his difficulty in swallowing regressed, the SpO₂ level was 96-97%, and he was sent to the clinic. We observed that the swallowing difficulty and tongue edema was completely resolved after 24 h periods. There was no recurrence at the patient's 1st, 2nd, 3rd and 7th day visits.

Discussion

LMA™ is a ring-shaped low-pressure cushion-like apparatus that is positioned at the glottis™bn where the gastrointestinal system and respiratory system converge. If fitted appropriately and its cuff is inflated, the lower end of LMA™ resides at the level of the upper esophageal sphincter with its sides pressing the piriform fossa and upper end extending to the base of the tongue. In this position, the epiglottis lies in LM facing upwards, which secures the airway open (3). In the standard LMA™ technique, low oral volume, inexperienced clinicians, and the flexible nature of the instrument reduce success rates (4). “Flexometallic Laryngeal Mask Airway” (FLMA™) comprises an “Introducer” that is rigid, in proper curvature with the airway, and easily extracted from LM after the insertion, which increases the success rates (5-6). In this case, FLMA™ was used.

Tongue edema caused by LM is a rarely-observed complication. A literature search revealed that complications occurred because of inappropriate LM-size selection and lengthened use (2). In this case, LM was appropriately selected according to patient weight and specialties. To our knowledge, there is no case reporting lingual edema caused by forgotten introducer.

External pressure applied to the tongue vessels may cause edema after surgery (7). If placed anatomically and used within tolerable time limits, the flexible nature of LMA™ does not cause a problem to tongue vascularization (8). Although FLMA™ is analogous to standard LMA™, it is more easily inserted using its “Introducer™” (Figure 3). The tough plastic and metal combination nature of the “Introducer™” contributes to the pressure exerted to the base of the tongue if not extracted after the insertion of LM. In the present case, extraction of the “Introducer™” was forgotten, and tongue edema was observed after the surgery after the removal of the LM. In the patient presented by Stillman, the surgery lasted 5 h, and the tongue edema was associated with long surgery time and a larger size LMA™ (2). In our case, the surgery was completed in a short time, i.e., 35 min, and the LMA™ size was selected based on the patient's characteristics. Because surgery time was short, appropriate size LMA™ was used, and the cuff was inflated with a relatively low volume, i.e., 25 mL, the tongue edema in this case was attributable to the “Introducer™.” Twig et al reported a surgery time of 90 min, and size:5 LMA™ cuff

was inflated with 30 mL of air. They disclosed that the edema and cyanosis in the tongue were associated with the nitrous oxide gas used in anesthesia, leading to increased cuff pressure. We did not use nitrous oxide and the cuff pressure was within normal limits.

Conclusion

If FLMA™ is planned to be used in LM administration, the “Introducer™” should be extracted after LM is inserted. Otherwise, a spectrum of complications ranging from tongue edema to life-threatening complications may develop. We recommend routine examination of the tongue during the follow-up.

Informed Consent: Written informed consent was obtained from the patient.

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References

1. Brimacombe J. The advantages of the LMA over the tracheal tube or facemask: a meta-analysis. *Can J Anaesth.* 1995; 42(11): 1017-23. [\[CrossRef\]](#)
2. Stillman P.C. Lingual oedema associated with the prolonged use of an inappropriately large laryngeal mask airway (LMA™) in an infant. *Paediatric Anaesthesia.* 2003; 13: 637-39 [\[CrossRef\]](#)
3. Janssens M, Lamy M. Laryngeal mask. *Intensive Care World.* 1993; 10(2): 99-102.
4. Chakravarty A, Wadhawan S. A novel technique of flexible reinforced laryngeal mask airway insertion. *Anaesth Intensive Care.* 2009; 39: 669-70.
5. Kulkarni AH, Simon BP, Jose JK. A new flexible laryngeal mask airway introducer. *Indian J Anaesth.* 2012; 56(1): 94-5. [\[CrossRef\]](#)
6. Cook TM, Ford P, Craft TM, McCormick B, Ryder SA. An evaluation of the flexiguide introducer with the flexible laryngeal mask airway. *Anaesth Intensive Care.* 2003; 31: 193-5.
7. Senders CW, Eisele JH. Lingual pressure induced by mouthgags. *Int J Pediatr Otorhinolaryngol.* 1995; 33: 53-60. [\[CrossRef\]](#)
8. Twigg S, Brown JM, Williams R. Swelling and cyanosis of the tongue associated with use of a laryngeal mask airway. *Anaesth Intensive Care.* 2000; 28(4): 449-50.